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(54) Title: POTASSIUM FREE ZINC SILICATE GLASSES FOR ION-EXCHANGE PROCESSES

(57) Abstract: A fluorinated zinc-silicate glass having a composition, expressed in molar percent, of essentially from about 49 to about 69 % SiO_2, from about 2 % to about 30 % ZnO, from about 3.9 to about 18 % Al_2O_3, from about 10 % to about 16.7 % Na_2O, from about 0 % to about 13 % B_2O_3, from about 0 % to about 0.8 % MgO, from about 0 % to about 0.7 % BaO, from about 0 % to about 3 % $Zr0_2$, from about 0 % to about 6.7 % CaO, from about 0 % to about 0.11 % As_2O_3, from about 0 % to about 0.07 % Sb_2O_3, from about 0 % to about 3 % NaF and from about 0 % to about 3.9 % AlF_3. The glass can be prepared in optical quality slabs, is chemically durable in water, $NaNO_3$ salt melts and boiling NaOH, and has a refractive index close to that of the optical fiber to reduce coupling losses. The glass includes Na as a single alkali ion species exchangeable for silver in an ion-exchange process that provides a sufficient index change for waveguiding.